STATE BUILDING CODE INTERPRETATION NO. 10-JUNE01

CODE: 2009 WSEC

SECTION: 505.1

QUESTION: This section requires 50% of luminaires to be high efficacy. When it has been demonstrated that an equivalent or greater amount of energy would be saved by allowing a screw based lamp to meet the high efficacy requirement, is this an acceptable alternate method of compliance?

ANSWER: Yes. WSEC Section 103 allows the building official to approve alternative methods and materials if it can be shown that the performance will meet or exceed the provisions of the code.

The two primary issues related to the lighting standards are energy savings and the persistence of savings over time.

Energy Savings:
According to a survey of new home construction constructed in 2007, on average new homes have 44 built in luminaires (fixtures) that house 70 lamps. Of these lamps, 92.4 percent are screw base and 7.6 percent are pin based. Pin base are primarily found only in liner fluorescent lamps. It should be noted the same study shows that about half the luminaires have one lamp, and half have more than one lamp. Based on the average home data provided in the study noted above the code as adopted will result in a minimum of 22 high efficiency luminaries and lamps being installed. The alternative standard based on 50% of lamps would result in the installation of 35 lamps. More lamps will result in greater energy savings.

Persistence of Savings:
The Northwest Energy Star homes program requires that 50% of all lamp sockets include high efficiency lamps. A post occupancy study found that the retention rate is exceptional. The post occupancy survey noted that many consumers had increased the number of high efficiency lamps in the home. Further, there are supply issues related to the adopted standard. Pin based replacement lamps are not readily available to consumers. This challenge may have a negative impact on retention of high efficiency fixtures and lamps.

SUPERSEDES: None

REQUESTED BY: City of Shoreline

Works Cited:

ECON Northwest (2008). *Energy Star Homes Northwest Program, Market Progress Evaluaiton Report #5.* Portland OR: Northwest Energy Efficiency Alliance.

RLW Analytics (2007). *Single-family Residential New Construciton Characteristics and Practices Study Final Report.* Portland OR: Northwest Energy Efficiency Alliance.